

ICS 77.120.90
CCS H 14;D42

YS

**NONFERROUS METALS INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

YS/T 514.6-2009

Replacing YS/T 514.9-2006

**Methods for chemical analysis of high-titanium slag and rutile.
Part 6: Determination of manganese monoxide content. Flame
atomic absorption spectrometry**

高钛渣、金红石化学分析方法 第6部分：一氧化锰量的测定 火焰原子吸收光谱法
(English Translation)

Issued on: December 4, 2009

Implemented on: June 1, 2010

Issued by: Ministry of Industry and Information Technology

Table of Contents

- Foreword
- 1 Scope
- 2 Method summary
- 3 Reagents
- 4 Instrument
- 5 Sample
- 6 Step, Analysis
 - 6.1 Sample

Foreword

YS/T 514 "high titanium slag and rutile chemical analysis method" is divided into 10 parts.

- Part 1. Determination of titanium dioxide content of ammonium ferric sulfate titration;
- Part 2. Determination of total iron content of dichromate method;
- Part 3. Determination of sulfur content of high frequency infrared absorption method;
- Part 4. Determination of the amount of silica weighing method, the molybdenum blue spectrophotometric method;
- Part 5. aluminum oxide content - EDTA titration;
- Part 6. Determination of a manganese oxide content by flame atomic absorption spectrometry;
- Part 7. calcium oxide, magnesium oxide content - Flame atomic absorption spectrometry;
- Part 8. Determination of the amount of phosphorus antimony molybdenum blue spectrophotometric method;
- Part 9. calcium oxide, magnesium oxide, manganese oxide, phosphorus, chromium oxide and vanadium pentoxide content - Inductively coupled plasma Daughters emission spectrometry;
- Part 10. Determination of the amount of carbon frequency infrared absorption method.

This section YS/T 514 Part 6.

The partial replacement of YS/T 514.9-2006 "high titanium slag and rutile measured

chemical analysis of a manganese oxide content of a persulfate Arsenite volumetric method. " this portion of YS/T 514.9-2006 compared to the main changes are as follows.

--- Manganese oxide content was determined by a flame atomic absorption spectrometry;

--- Increasing the precision and quality assurance provisions.

The non-ferrous metal part by the National Standardization Technical Committee and centralized.

This section is responsible for drafting unit. Zunyi Titanium Co., Ltd., China Nonferrous Metals Industry Standards and Metrology Institute for Quality.

Participated in the drafting of this section. Jinchuan Group Co., Ltd. Fushun Titanium.

1 Scope

YS/T 514 This part provides high titanium slag and rutile in a determination of manganese oxide content.

This section applies to high titanium slag and rutile in a determination of manganese oxide content. Measurement range. 0.10 to 5.00%.

2 Method summary

Sample to fusion with sodium peroxide with dilute hydrochloric acid leaching. Atomic absorption spectrophotometer, at a wavelength of 279.5nm, air - acetylene Determination of manganese flame absorbance, thereby calculating the amount of a sample of manganese oxide.

3 Reagents

Unless otherwise indicated in the analysis using only recognized as analytical reagent or distilled or deionized water or equivalent purity.

3.1

sodium peroxide.

3.2

HCl (1 + 1).

3.3

sulfate (1 + 4).

3.4

manganese standard stock solution. Weigh 0.1000g pure manganese (Mn mass fraction $\geq 99.99\%$), with 20mL of sulfuric acid (3.3) dissolved shift Into 1000mL volumetric flask,

dilute with water to volume, and mix. This solution 1mL containing 0.1mg of manganese.

3.5

Manganese standard solution. Pipette 10.00mL manganese standard stock solution (3.4) into 100mL volumetric flask, dilute to the mark with water, mix uniform. This solution 1mL manganese 10 μ g.

4 Instrument

Atomic absorption spectrometer, with a manganese hollow cathode lamp.

Under optimum working conditions for those who can reach the following indicators can be used.

--- Characteristic concentration. a solution in the matrix is consistent with the measured solution, the concentration of Mn characteristic should not exceed 0.03 μ g/mL.

--- Precision. measuring the absorbance of 10 with the highest concentration of standard solution, the standard deviation should not exceed the average absorbance of 1.0%, with the lowest concentration of standard solution (not "zero" concentration of the standard) measuring the absorbance of 10 times, the standard deviation should not exceed the maximum concentration 0.5% of the mean absorbance of the standard solution.

--- Linear curve. The curve is divided into five sections according to concentration, absorbance difference absorbance difference between the highest and the lowest segment of the segment Ratio of not less than 0.7.

5 Sample

5.1

Sample size should be less than 90 μ m.

5.2

Sample required in advance at 105 °C ~ 110 °C drying 2h, placed in a desiccator to cool to room temperature.

6.1 Sample

Weigh 0.1g sample, accurate to 0.0001g.